

IAN SCOTT HAMILTON, Ph.D., CHP

EDUCATION

Ph. D. (Nuclear Engineering), Texas A&M University

M. S. (Health Physics), Texas A&M University

B. S. (Biology with Nuclear Engineering minor), SUNY ? Albany

CERTIFICATIONS & LICENSES

American Board of Health Physics (ABHP) Certified Health Physicist (CHP)

Senior Reactor Operator License – AGN-201 Reactor, US Nuclear Regulatory Commission

APPOINTMENTS

Appointed by President Bush (then Governor) as the *health physicist* for the Texas Radiation Advisory Board (TRAB).

Appointed as an *associate member* of the National Council on Radiation Protection and Measurement (NCRP), as a member of Scientific Committee 46-14 to investigate/define radiation protection issues related to terrorist activities that result in the dispersal of radioactive material (NCRP Report No. 138).

(2001-present) *Member*, Health Physics Society *ad hoc* Committee for Homeland Security and Chair, Subcommittee on Publications

(2001-present) *Member*, Health Physics Society Academic Education Committee (national-level appointment)

(1999-2000) *Chair*, Health Physics Society Public Education Committee (national-level appointment)

Past-President, South Texas Chapter of the Health Physics Society (President during 2000-2001 term)

(2001-2002) *Chair*, Science Teacher Workshop Committee, South Texas Chapter – HPS

(1995 - Present) *Faculty Advisor*, Texas A&M University Health Physics Society Student Branch

CURRENT EMPLOYMENT

President and CEO, Foxfire Scientific Inc., outside consulting as a forensic health physicist and radiological health engineer, 1999 – Present

Recent litigation support and radiological engineering projects include:

Aguirre et al. v. BFI et al. – preparation of expert report, deposition and trial testimony
Bulot et al. v. ITCO et al. – preparation of expert report
Cano et al. v. Everest Minerals et al. – preparation of expert report, deposition and affidavits
Ramon Gauna, Jr. v. Bruce L. Jameson et al. – preparation of expert report, deposition

Perform radiation dose assessments and retrospective radiation dose reconstructions in support of litigation. Responsibilities include reconstructing time and motion studies of potentially exposed individuals; determination and reconstruction of source terms for various internal and external exposure pathways; calculation of doses from inhalation, ingestion, external exposure, and radon inhalation for specific commitment period and specific affected organs; communication of results of studies in both written reports and oral deposition/testimony as required.

Evaluation of radiation shielding requirements as specified in a barrier criteria by Southwest Research Institute to MD Anderson Cancer Center for an accelerator-based radiation oncology suite consisting of eight 20 MeV Clinacs in separate, shielded vaults

Radiation safety plans for R.P. Kincheloe and NeoServe/Syntier Solutions

Consulting Radiation Safety Officer to NeoServe/Syntier Solutions, (2001 – 2002)

Assistant Professor and Health Physics Program Director, Department of Nuclear Engineering, Texas A&M University, September 1999 – Present.

Responsibilities as assistant professor include:

- ? Performing research on applied and theoretical aspects of health physics,
- ? Instructing undergraduate and graduate health physics, industrial hygiene, and safety and nuclear engineering majors in the principles of radiation safety and radiological health engineering, and
- ? Performing professional and public service.

Research interests include internal dose assessment, external dosimetry, radiological assessment (dose reconstruction or projection), especially for transuranics and naturally occurring radionuclides (incl. radon in air and water), radiological health engineering design projects, and radiation detection and measurement as it applies to the previous subjects.

Recent projects include: the directorship of a 30+ professor environmental, agricultural and societal impact project for a proposed plutonium processing facility; development of a new TLD reader for trace environmental radiation studies; and characterization of environmental radiation doses to a population near a Type-1 landfill. Current research includes assessment of the environmental impact for long-term storage of low-level radioactive waste in Texas and the potential for a radiological assessment based on the food webs of the Aleutian Islands (Amchitka).

Teaching responsibilities specifically include Radiation Detection and Isotope Technology Laboratory (NUEN 402 - spring), Radiological Safety (NUEN 409 – fall), and development and instruction of two new courses: a one-hour multidisciplinary course on technical communication of nuclear issues; and, a three-hour (one-hour per week lecture and six-hours per week lab) environmental radiation measurements course. Additional responsibilities include coordination and supervision of, and participation in the teaching of all radiation safety-related short courses for industry and government, e.g., the five-week Principles of Health Physics: Theory to Practice course (annual) and the one-week Radiation Safety Officer course.

Responsibilities as Health Physics Program Director include curriculum development and revision, recruitment of undergraduate and graduate students, and acquisition of programmatic funding and internship opportunities. Responsible to the Department Head to steer the HP faculty as to the scope and vision of the program, which includes working with representatives from the various radiation protection industries.

PREVIOUS WORK EXPERIENCE

Focus Group Leader, Health and Safety Focus Group of the Amarillo National Resource Center for Plutonium (ANRCP), March 1998 to May 2000.

Responsibilities included oversight, as academic liaison, between the ANRCP Environment, Health and Safety Focus Area, and various academe of the consortium, for all health and safety facets of the research program. Specific tasks included identification of health and safety research needs within the weapons complex, identification of consortium members whose backgrounds fit specific, proposed research, and coordination between focus group investigators to ensure complementary effort.

Laboratory Manager and Lecturer, Department of Nuclear Engineering, Texas A&M University, College Station, TX 77843, November 1990 – August 1999 (Laboratory Manager); August 1995 – August 1999 (Lecturer).

Leading First Class Petty Officer, USS Henry Clay (SSBN 625), Electrical Division of the Nuclear Engineering Department, November 1987 - November 1990.

Electrical Division Materials Leading Petty Officer Assistant, S7G Naval Reactor Facility, Ballston Spa, NY, August 1986 - December 1986.

Operator/Instructor, S7G Naval Reactor Facility, Ballston, NY, August 1983 - December 1986.

PROFESSIONAL AFFILIATIONS

Health Physics Society – National, State and Local
American Nuclear Society – National
Sigma Xi ? the Scientific Research Society

SPIE ? the International Society for Optical Engineering
American Society of Engineering Educators

SPECIAL TRAINING

1999 Monte Carlo Neutral Particle Transport Codes for Radiological Health Engineers,
Medical Physicists, and Health Physicists
1998 Health Physics Society Summer School (Radiation Safety Program Admin.)
1997 Health Physics Society Summer School (Non-ionizing Radiation)
1997 Calculating Risk from Radionuclides Workshop
1996 Transmission Electron Microscopy Operation Workshop
1996 Mammalian Cell Culture Laboratory Workshop
1995 NSF Engineering Education Scholars Workshop
1995 Health Physics Society Summer School (Reactor Health Physics)
1994 Health Physics Society Summer School (Internal Dosimetry)
1994 OSHA "Hazardous Materials" 78 hour short-course ? certified Hazardous Materials Spill On-
scene Responder
1988 Submarine Electrical Distribution and Control Systems
1987 Electrician's Advanced Electronics School (C-7)
1985 Crew Quality Inspector (QA/QC) School
1984 Naval Instructor Training School
1983 Naval Nuclear Power School, and Prototype Training Unit S7G
1982 Electrician's Mate 'A' School

PUBLICATIONS

Hamilton IS, Arno MG, Rock JC, Berry RO, Poston JW, Cezeaux JR, Park JM. Radiological assessment of petroleum pipe scale and pipe rattling operations. Accepted for publication in *Health Physics*.

Arno, M.G., Hamilton, I.S., "Radiation streaming and skyshine evaluation for a proposed low-level radioactive waste assured isolation facility," Accepted for publication in *Health Physics*.

Krieger, K.V., Hamilton, I.S., "Analysis of Small Sample Geometry for Concurrent Identification and Quantification of Mixed-Nuclide Samples," in "Instrumentation, Measurements and Dosimetry," Medical Physics Publishing, pp. 23-31, 2000.

Thompson, J.M., Thompson, E.A., Hamilton, I.S., "An Approach to Evaluating the Societal Risks and Agricultural Impacts from a Proposed Plutonium Processing Facility." in *Health Phys.* 77(2): S32-39, August 1999.

Thompson, E.A., Thompson, J.M., Hamilton, I.S., "Potential agricultural impacts of accidents at a proposed plutonium processing facility at the Pantex Plant." in *Creation and Future Legacy of Stockpile Stewardship; and Isotope Production, Applications, and Consumption*, J.M. Hylko and R.L. Salyer editors, Medical Physics Publishing, pp. 229-234, 1999.

Thompson, J.M., Thompson, E.A., Hamilton, I.S., "Independent assessment of the hazards of proposed plutonium processing facilities at the Pantex Plant." in Creation and Future Legacy of Stockpile Stewardship; and Isotope Production, Applications, and Consumption, J.M. Hylko and R.L. Salyer editors, Medical Physics Publishing, pp. 25-28, 1999.

Comfort, C.M., Hamilton, I.S., "Health physics concerns during delayed neutron measurements for actinide waste isotopes." Addendum to Creation and Future Legacy of Stockpile Stewardship; and Isotope Production, Applications, and Consumption, J.M. Hylko and R.L. Salyer editors, Medical Physics Publishing, 1999.

Hearne, D.D., Hamilton, I.S., "Feasibility study of ^{99m}Tc production by neutron capture and solvent extraction at a 1-MW TRIGA facility." Addendum to Creation and Future Legacy of Stockpile Stewardship; and Isotope Production, Applications, and Consumption, J.M. Hylko and R.L. Salyer editors, Medical Physics Publishing, 1999.

Freeman, B. L., Faleski, T. J., Hamilton, I. S., Parish, T., and Rock, J. C., "Conventional and explosive pulsed power development at Texas A&M University," in 8th International Conference on Megagauss Magnetic Field Generation and Related Topics, Tallahassee, Florida, October 19-23, 1998.

Hamilton, I.S., Thompson, E.A., Thompson, J.M., "Environmental and agricultural impacts of accidents postulated for missions proposed for the USDOE Pantex Plant." in "International Radiological Post-Emergency Response Issues Conference – Meeting Proceedings," USEPA, pp. 18-21, 1998.

Hamilton, I.S., Thompson, J.M., Thompson, E.A., Krieger, K.V., Charbeneau, R.J., Landsberger, S., Maidment, D., Hay-Wilson, L., Barnes, D., Beard, C.A., Hartley, R., Sweeten, J., "Preliminary assessment of relative societal risk for missions proposed for the U.S. Department of Energy Pantex Plant" October 1998.

"Independent safety and risk assessment for a proposed plutonium conversion facility in the Texas Panhandle," in Amarillo National Resource Center's "1998 Researchers' Conference Proceedings," pp. 93-96, 1998.

Hamilton, I.S., Charbeneau, R.J., Barnes, D.L., "Characterization of the risks associated with producing mixed-oxide fuel at Pantex." in "ANS Transactions," TANSO Vol. 78, pp. 201, 1998.

Hamilton, I.S., Emery, R.J., "The A&M – UT health protection engineering student pipeline: an assessment of the experience during the first two years," in Good Practices in Health Physics, G.R. Komp and M.A. Thompson editors, Medical Physics Publishing, pp. 113-120, 1998.

Hamilton, I.S., Thompson, J.M., Thompson, E.A., "A preliminary assessment of relative societal risk for missions proposed for the USDOE Pantex Plant." Draft report for the Amarillo National Resource Center for Plutonium (ANRCP); November 1997.

Hamilton, I.S., Cloud, M.A., Emery, R.J., Mullani, N., "A computer-based radiation safety records management system for positron-emission tomography dose calibrators." Rad. Saf. Off. 2(3): 32-37; June 1997.

Hamilton, I.S., Barnes, D.L., Charbeneau, R.J., "Screening level risk characterization for a plutonium conversion and mixed-oxide fuel facility at the Pantex Plant: I & II. Societal and Agricultural Impacts," in preparation for the Health Physics Journal.

Barnes, D.L., Hamilton, I.S., Charbeneau, R.J., "Screening level risk characterization for a plutonium conversion and mixed-oxide fuel facility at the Pantex Plant: III. Environmental Impact," in preparation for the Health Physics Journal.

Hamilton, I.S.; McLain, M.E.; Fulmer, P.C.; Poston, J.W.; Bolch, W.E., "A light-sensitive semiconductor-based detector for cellulose nitrate thickness measurements in LR-115 alpha track detectors," Nuclear Tracks and Measurements, under review.

Hamilton, I.S.; McLain, M.E.; Poston, J.W.; Bolch, W.E.; Fulmer, P.C., "A method for correcting LR-115 alpha-track detector calibration-factor errors caused by variations in cellulose nitrate emulsion thickness," Health Physics Journal, under review.

Hamilton, I.S.; Poston, J.W.; Bolch, W.E.; Fulmer, P.C.; "A spectrometer for producing real-time three-dimensional thermoluminescence glow curves," Review of Scientific Instruments, under review.

OUTSIDE LECTURING AND PROFESSIONAL WRITING

"Teaching the teachers: a workshop on how to present HPS Science Teacher Workshops the South Texas Way," presented by invitation to sixty health physicists at the 2001 Annual Meeting of the Canadian Radiation Protection Association, Halifax N.S., May 14th, 2001.

"Teaching the teachers: a workshop on how to present HPS Science Teacher Workshops the South Texas Way," presented to sixty health physicists at the 44th Annual Radiation Safety Conference and Exposition, Denver, June 28th, 2000.

"Operational Thermoluminescence Dosimetry," Health Phys. 78(5): 569-569, May 2000.

"Computer Applications in Health Physics," article in the March 2000 issue of the Health Physics Society Newsletter.

"Prospects for Radiological Terrorism in the US," presented at the Texas A&M University, Department of Nuclear Engineering graduate seminar, February 7th, 2000.

“*Your* Public Education Committee in the Year 2000,” article in the February 2000 issue of the Health Physics Society Newsletter.

“Thermoluminescence in the Third Dimension: From the Need for Imperfection to Useful Application,” presented at the Texas A&M University, Department of Nuclear Engineering graduate seminar, March 1st, 1999.

“Team assesses risks of proposed plutonium processing facilities at the Pantex Plant;” article in the October 1998 issue of the Health Physics Society Newsletter.

“Results of the on-going risk assessment for missions proposed by the USDOE for the Pantex Plant;” public address presented in Amarillo, TX, at the USDOE Public Hearing for comments concerning the Surplus Plutonium Disposition Environmental Impact Statement Preliminary Draft, August 11th, 1998.

“Global status of nuclear weapons;” lecture presented at the Annual Meeting of the South Texas Chapter of the Health Physics Society, May 2nd, 1998.

“Preliminary risk assessment for missions proposed by the USDOE for the Pantex Plant;” lecture, presented to the Pantex Plant Citizen’s Advisory Board, January 27th, 1998.

“Preliminary risk assessment for missions proposed by the USDOE for the Pantex Plant;” lecture presented at the capital building annex in Austin, followed by a press conference and town hall meeting in Amarillo, the following day (11-12/13-1997).

SECURITY CLEARANCE

Department of Defense SECRET based on Entrance National Agency Check (ENTNAC), May 1982 – November 1990.